

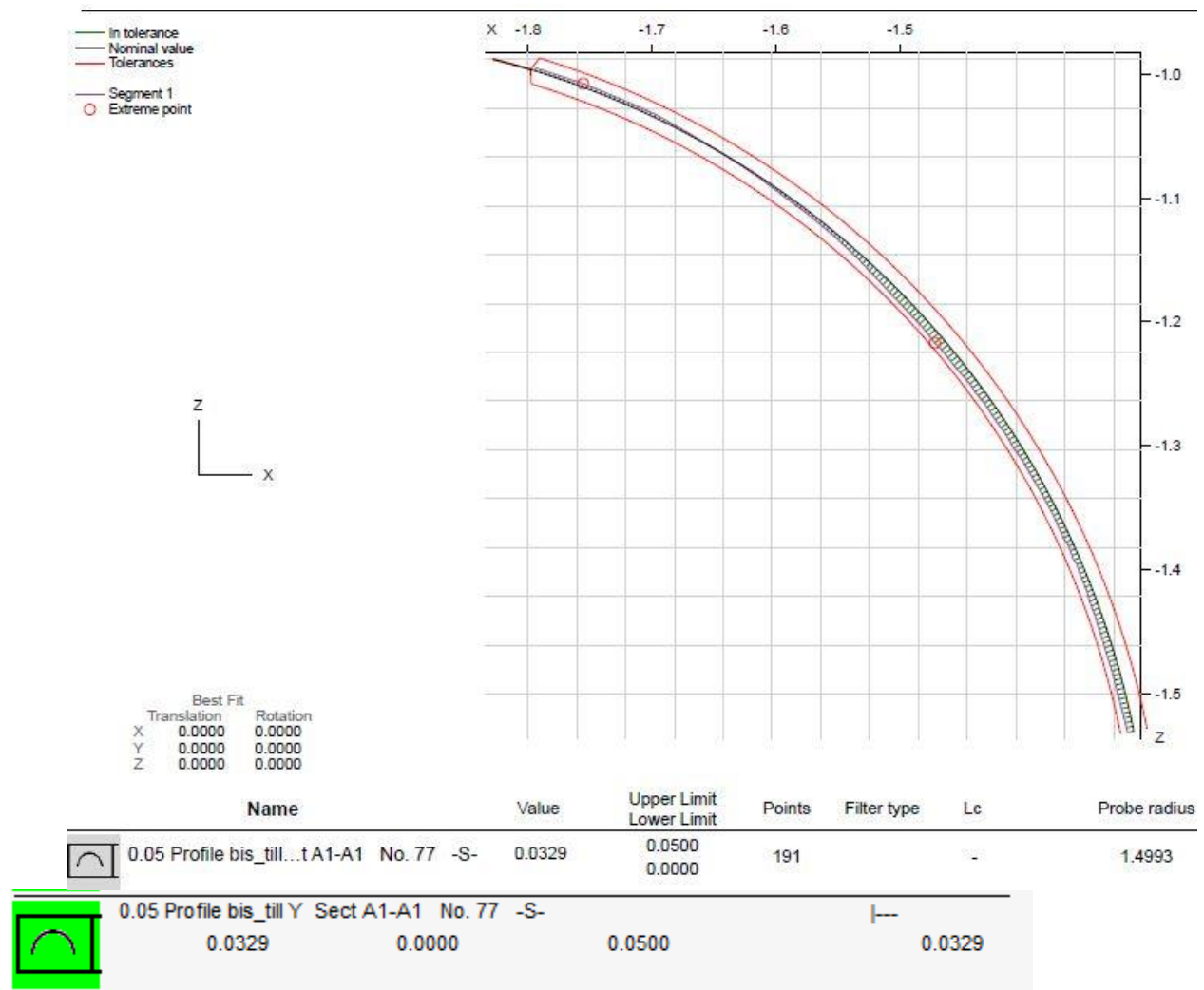
# Profile, Curve Form and Calypso

Below is the same curve profile reported with Bilateral one result, Bilateral two results, and Curve Form.

The objective is to show the report variation of one measured curve with the different formats available in Calypso.

## Profile of a Line –

**Profile Bilateral One Result** – Takes the point furthest from nominal and doubles the result. Value is 0.0329



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cmmquarterly@gmail.com

**Profile Bilateral Two Results** – Reports the minimum and maximum points along the curve

**Bilateral - two results** Shape Of Zone

0.0500 Tolerance

0.0000 Tolerance (one side)

**Feature**  
2D Curve1

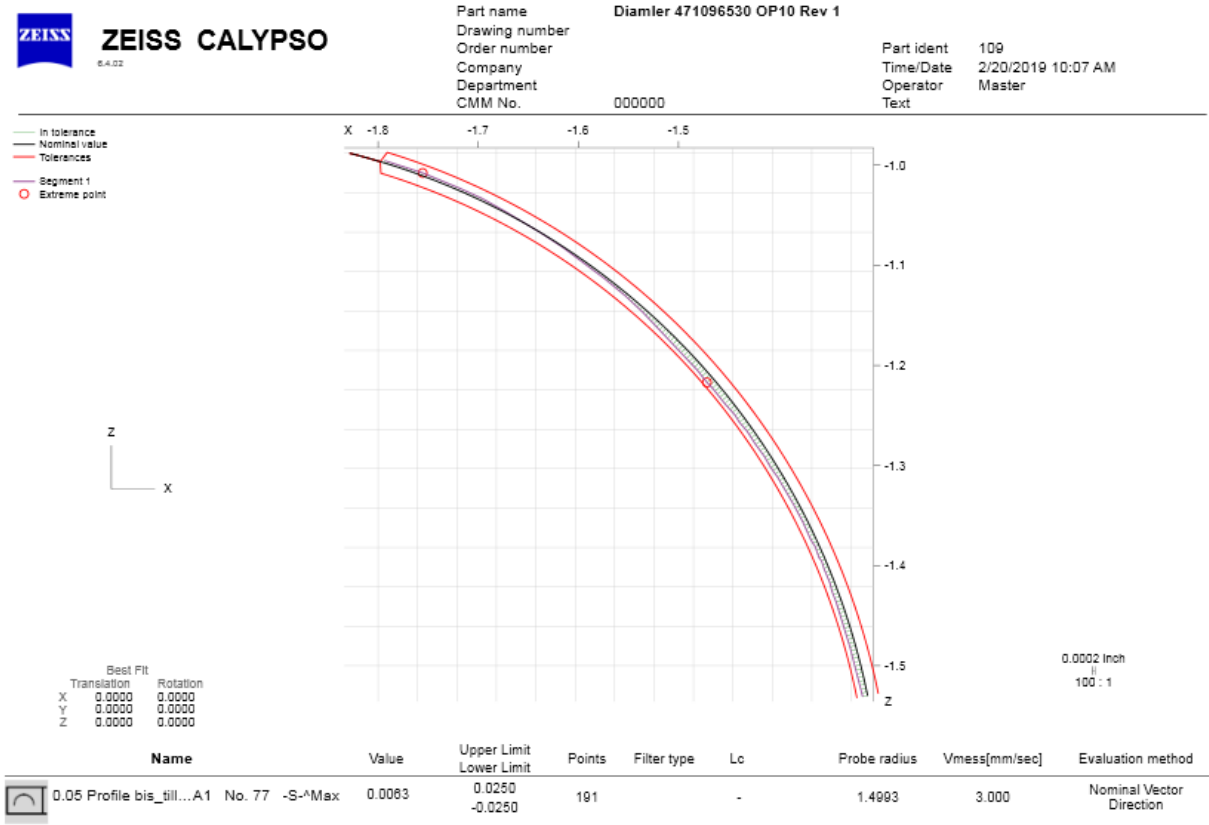
**Alignment of Feature** Datum Ref. Frame

**Primary Datum**  
Base Alignment

Minimum **-0.0164** Maximum **0.0063**

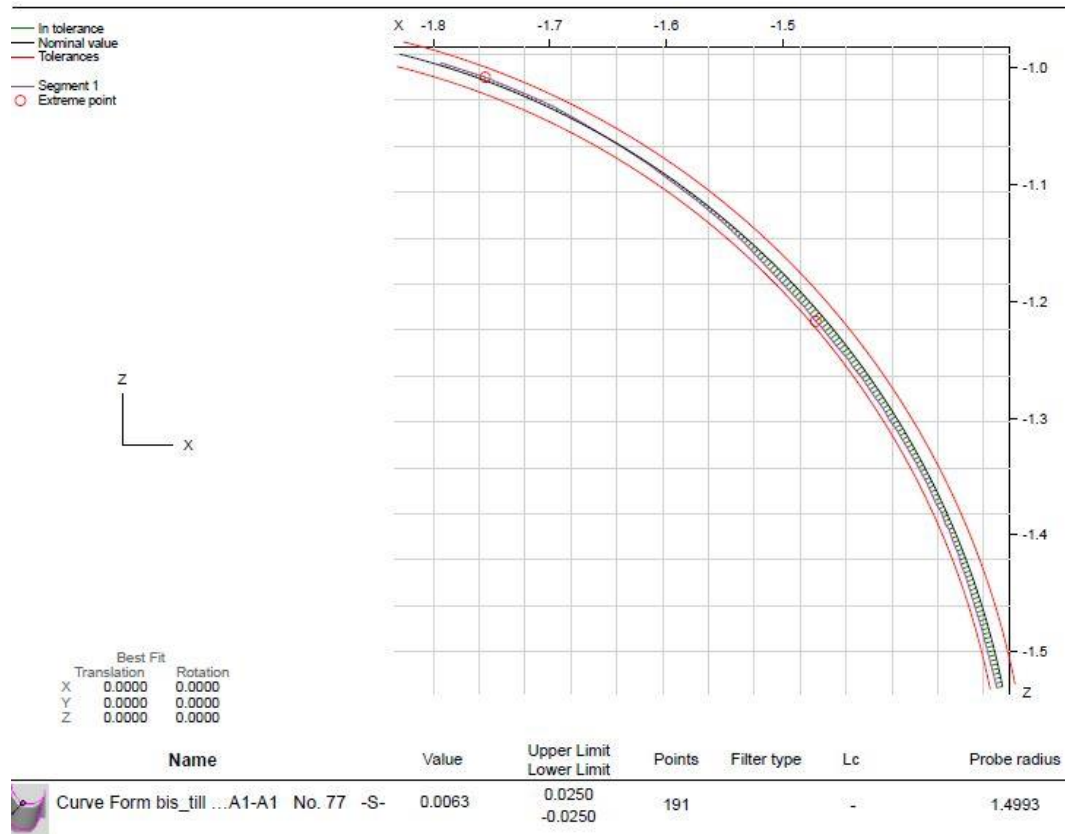
	0.05 Profile bis_till Y Sect A1-A1 No. 77 -S-^Min	-0.0164	0.0000	0.0250	-0.0250	-0.0164
	0.05 Profile bis_till Y Sect A1-A1 No. 77 -S-^Max	0.0063	0.0000	0.0250	-0.0250	0.0063

Notice on the report the tolerance zone is automatically change to a +/- tolerance.



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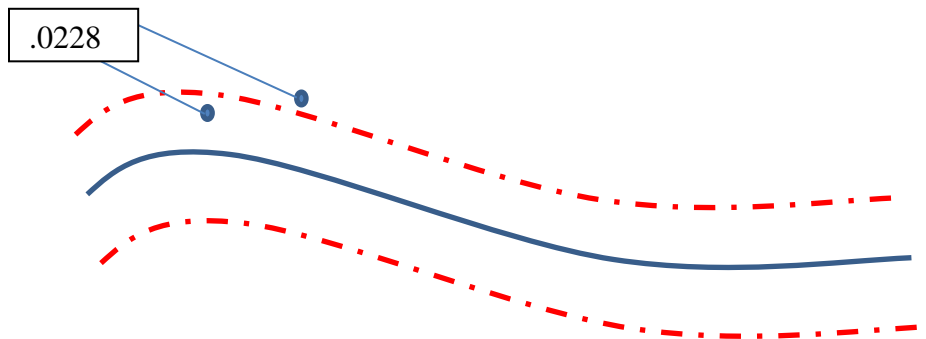
**Curve Form** – This characteristic reports the delta between the min/max points of a curve, regardless of the position of the min or max point within the tolerance.



Result is 0.0228. (Min + Max = Result ---  $0.0164 + 0.0063 = 0.0228$ )

	0.05 Profile bis_till Y Sect A1-A1 No. 77 -S-^Min	-0.0164	0.0000	0.0250	-0.0250		-0.0164
	0.05 Profile bis_till Y Sect A1-A1 No. 77 -S-^Max	0.0063	0.0000	0.0250	-0.0250		0.0063
	Curve Form1	0.0228	0.0000	0.0250	-0.0250		0.0228
	Shape Of Zone: Standard						

The issue with using Curve Form is no matter where it falls along the nominal curve it is the sum of the min & max points values. A curve that is unacceptable might be reported as good due to the result value.




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
## Adding Additional Positional Result to Profile

**This is not recommended.** The nominal values are related to the min & max points when Min/Max are reported.


Notice the profile (the first item in the report) is the same as the minimum point. This is due to this point being the furthest away from nominal thus it is the one used in the calculation of the profile. This 'T' value ( the distance of the point along the normal vector of the curve) is doubled and this becomes the profile result ( $0.0164 \times 2 = 0.0329$ ).

0.05 Profile bis_till Y Sect A1-A1 No. 77 -S-						
		0.0329	0.0000	0.0500	0.0000	0.0329
X	-37.2557	-37.2432				-0.0125
Y	0.0976	0.0975				0.0000
Z	-30.8026	-30.7919				-0.0107

0.05 Profile bis_till Y Sect A1-A1 No. 77 -S-^Min						
		-0.0164	0.0000	0.0250	-0.0250	-0.0164
X	-37.2557	-37.2432				-0.0125
Y	0.0976	0.0975				0.0000
Z	-30.8026	-30.7919				-0.0107

0.05 Profile bis_till Y Sect A1-A1 No. 77 -S-^Max						
		0.0063	0.0000	0.0250	-0.0250	0.0063
X	-44.6119	-44.6141				0.0022
Y	0.1168	0.1168				0.0000
Z	-25.6541	-25.6601				0.0059

**Profile and SPC** - Profile on a Curve **should not** have a CPK requirement assigned to it. There is no centroid or X, Y, Z location to target to. Use the graph to target the location of the curve to the nominal curve profile.

**Conclusion** – Profile in Calypso meets both the ANSI and ISO standards. Any deviation of the profile of the curve will be shown on the graph. You must adjust to the graph. CP and CPK are not valid process constraints for GD&T Profile.

Curve form will give you the form of the curve but will not accurately report the location or acceptability of the curve when it comes to GD&T Profile. As shown in the above example the curve form is 0.0228 of a 0.050(+/- 0.025) tolerance. The form is using close to ½ of the profile tolerance and should be addressed prior to adjusting the curve to meet the profile callout.